

A National Asset

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An advertisement for Asylum Research Cypher AFMs. The background is a dark blue gradient. On the left, there is a stylized illustration of a film strip with orange and yellow frames, and a purple, textured, hourglass-shaped object. The text is in white and orange. The main text reads: 'Not all AFMs are created equal' in orange, 'Asylum Research Cypher™ AFMs' in white, and 'There's no other AFM like Cypher' in orange. Below this, the website 'www.AsylumResearch.com/NoOtherAFMLikeIt' is written in white. In the bottom right corner, there is a logo for 'OXFORD INSTRUMENTS' with the tagline 'The Business of Science®' below it.

truth you discover serve society. Not only research staffs but industrial managers should at all times be kept informed of your new discoveries. With such knowledge, promptly obtained, I am certain we can shorten the time-gap which now separates technological unemployment and useful reemployment.

"Any measure of unemployment relief obtained by placing a check-rein upon technology, or by arbitrarily hampering men's efficiency, is unsound, uneconomic, and cannot endure."

We hasten to add that Mr. Sarnoff's address

looks beyond science-industry cooperation to the broad social needs it would satisfy and the values it would create. We here comment on one aspect only, one which is of immediate interest and consequence to physicists in their daily work. We recommend a perusal of his own words for the remainder. We think that the work of the physicist and the auspices under which it is done will be the better for the first address ever made by an industrial leader to the American Physical Society.

H. A. B.

A National Asset*

PROMINENT among our avowed national objectives are: the banishment of disease; elimination of unemployment; higher standard of living including higher wages, shorter hours and greater opportunities for comfort and recreation; abolition of child labor; educational opportunities for all; social security against economic hazards or distress in old age; protection against natural hazards of flood, drought, wind, fire and earthquake; new markets for agricultural products.

I make bold to assert, for I believe that it can easily be proved, that there is not one of these fine objectives but that is basically dependent on science for its achievement. Take, for example, higher wages and shorter hours. Real wages are composed, of course, of all the things which a worker gets in return for his labor. In the last analysis the total wages which can be paid consist simply in the total number of necessary and desirable things which are produced in the world. Every new and useful product developed by science adds just so much to the sum total of real wages, and every machine for increasing production makes possible either more wages, or shorter hours of labor, or both.

It is a pity that so many of our social and political reformers have not evolved much beyond the "cave man" stage in their thinking. From the days of the cave man, all through history up to the modern era of science, there were only two primitive recipes for achieving the "more abundant life." One was to work hard and long in order to produce more; the other was to take the good things of life from someone else—by conquest or theft or taxation or exploitation. Too much of the doctrine of the more abundant life, even in our day, is based on the latter one of these primitive philosophies. To work hard and long to improve our lot has gone out of style; now the slogan is to soak the rich and to demand more while giving less.

Over against such primitive, though still popular, methods of seeking the good things of life, there is the sharp contrast of the modern method of putting science to work for us. If, by a practical application of science,

men are enabled to produce with tenfold rapidity, it is evident that they can get along on their former standard of requirements by working only one-tenth as long as they had previously done. Or, if they want to work half as much as they did before, they will still produce five times as much as before, so that the average man's real wage will consist of the products of five times as much labor as he used to enjoy.

This is the basic philosophy of science as a means toward social betterment. Science creates new materials, new methods and new opportunities. There is real danger that, in the present activity of labor to demand more wages and of government to demand more taxes to support its altruistic aims, the demands may exceed the supply. In other words, demands for wages and taxes may exceed the capacity of industry and agriculture to produce. The only hope in such a situation is for science still further to add to man's ability to produce desirable things. In fact, had it not been for the past achievements of science, our wages and standards of living would still be, for the masses of the people, at the primitive levels of constant struggle against starvation and suffering.

Let me give a very up-to-date example of the social values of science. It is an old story, of course, that the automobile industry has provided enormous employment at about the highest wages of any large industry in history, and that the automobile has opened up new opportunities of living, recreation and achievement to millions of people. Here however is a more recent aspect. The number of automobiles sold in the past year in America was approximately equal to the number sold in the last boom year of 1929. By all measures, the new car is at least fifty percent better than that of 1929—in economy of operation, safety, comfort and general quality. Yet I am informed that the aggregate cost to the public of the present cars was \$700,000,000 less than in 1929. So Mr. Citizen has a much better car and has saved \$700,000,000 which he can spend for something else that he wants, such as a better home, more delicious food, travel, books, life insurance, clothes, or a thousand and one things which altogether signify the "more abundant life."

—KARL T. COMPTON

* Extracts from an address at the dedication of the New Mellon Institute Building, Pittsburgh, May 6, 1937.